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Abstract	:	Computational automation in water quality management has emerged as a critical tool in ensuring sustainable and safe water resources. This chapter discusses the integration of advanced computational techniques, including machine learning, artificial intelligence, and sensor networks, to enhance the monitoring, analysis, and management of water quality. The discussion includes the development and application of automated systems for real-time data acquisition, processing, and decision-making. By applying computational automation, water quality management can achieve higher precision, efficiency, and responsiveness, addressing challenges posed by environmental changes and increasing water demand. This chapter provides a comprehensive overview of the current state of computational automation in water quality management, its technological fundamentals, case studies of successful implementations, and future directions. The aim is to show these technologies can be utilized to secure water quality and ensure public health and environmental protection.